

CLAIMS

We claim:

1. A personal radio service (PRS) device configured to engage in private, short-range two-way voice communications with other PRS devices in range of the PRS device comprising:

a GPS receiver disposed in the PRS device; and,

a radio frequency (RF) transceiver configured both to modulate and transmit voice communications and positioning data received from said GPS receiver, and also to demodulate voice communications and positioning data received from the other PRS devices in range of the PRS device.

2. The PRS device of claim 1, further comprising:

a positioning information processor for processing positioning data received from said GPS receiver.

3. The PRS device of claim 1, further comprising an encoder/decoder circuit for encoding positioning data for transmission by said RF transceiver.

4. The PRS device of claim 3, further comprising an identification tone generator for generating identification tones, said encoder encoding said positioning data in said generated identification tones for transmission by said RF transceiver.

1 5. The PRS device of claim 1, further comprising:
 2 a positioning information processor for processing said positioning data relative to
 3 an absolute location in a map; and,
 4 a visual display for displaying both said map and said processed positioning data
 5 overlain on said map.

1 6. The PRS device of claim 1, further comprising:
 2 a visual display for displaying position information based upon said positioning data.

1 7. The PRS device of claim 6, wherein said displayed position information comprises
 2 a bearing and range of another PRS device with which the PRS device is engaged in
 3 private, short-range, two-way voice communications.

1 8. The PRS device of claim 1, wherein the PRS device is a Citizens Band (CB) radio
 2 services device configured to engage in private, short-range two-way voice
 3 communications with another CB Radio Services device in range of said CB Radio
 4 Services device;

1 9. The PRS device of claim 1, wherein the PRS device is a General Mobile Radio
 2 Services (GMRS) device configured to engage in private, short-range two-way voice
 3 communications with another GMRS device in range of said GMRS device;

4 10. The PRS device of claim 1, wherein the PRS device comprises a Family Radio
5 Services (FRS) device configured to engage in private, short-range two-way voice
6 communications with another FRS device in range of said FRS device;

1 11. In a Personal Radio Services (PRS) device, a PRS communications method
2 comprising the steps of:

3 establishing a private, two-way, short-range voice communications link with at least
4 one other PRS device;

5 establishing a data link with a positioning data transmitter and receiving positioning
6 data from said positioning data transmitter;

7 processing said positioning data to determine location-based information associated
8 with the PRS device; and,

9 displaying said location-based information in the PRS device.

1 12. The method of claim 11, further comprising the steps of:

2 modulating said positioning data onto a carrier signal which can be transmitted over
3 said private, two-way, short-range voice communications link, and transmitting said
4 modulated positioning data to said another PRS device;

5 receiving modulated positioning data from said at least one other PRS device over
6 said private, two-way short-range voice communications link, and demodulating said
7 received modulated positioning data;

8 processing said demodulated positioning to determine further location-based
 9 information associated with said at least one other PRS device; and,
 10 displaying said further location-based information in the PRS device,
 11 whereby said displaying of said location-based information and said further location-
 12 based information can indicate a relative position of each PRS device participating in said
 13 two-way short-range voice communications link.

1 13. The method of claim 12, wherein said modulating step comprises the steps of:
 2 encoding said positioning data in an identification tone; and,
 3 modulating said identification tone onto a carrier signal which can be transmitted
 4 over said private, two-way, short-range voice communications link; and,
 5 transmitting said modulated positioning data to said another PRS device.

1 14. The method of claim 12, wherein said demodulating step comprises the steps of:
 2 receiving a modulated identification tone in a carrier signal from said another PRS
 3 device over said private, two-way short-range voice communications link;
 4 demodulating said received modulated identification tone; and,
 5 decoding positioning data in said identification tone.

1 15. The method of claim 1, further comprising the step of:
 2 encoding said positioning data using a privacy code prior to said transmission, said
 3 privacy code restricting access to said positioning data by other PRS devices.

16. A machine readable storage having stored thereon a computer program comprising a routine set of instructions for performing the steps of:

establishing a private, two-way, short-range voice communications link with at least one other PRS device;

establishing a data link with a positioning data transmitter and receiving positioning data from said positioning data transmitter;

processing said positioning data to determine location-based information associated with said at least one other PRS device; and,

displaying said location-based information.

17. The machine readable storage of claim 16, further comprising the steps of:

modulating said positioning data onto a carrier signal which can be transmitted over said private, two-way, short-range voice communications link, and transmitting said modulated positioning data to said at least one other PRS device;

receiving modulated positioning data from said at least one other PRS device over said private, two-way short-range voice communications link, and demodulating said received modulated positioning data;

processing said demodulated positioning to determine further location-based information associated with said at least one other PRS device; and,

displaying said further location-based information.

1 18. The machine readable storage of claim 17, wherein said modulating step comprises
2 the steps of:

3 encoding said positioning data in an identification tone; and,
4 modulating said identification tone onto a carrier signal which can be transmitted
5 over said private, two-way, short-range voice communications link; and,
6 transmitting said modulated positioning data to said at least one other PRS device.

1 19. The machine readable storage of claim 17, wherein said demodulating step
2 comprises the steps of:

3 receiving a modulated identification tone in a carrier signal from said at least one
4 other PRS device over said private, two-way short-range voice communications link;
5 demodulating said received modulated identification tone; and,
6 decoding positioning data in said identification tone.

1 20. The machine readable storage of claim 16, further comprising the step of:

2 encoding said positioning data using a privacy code prior to said transmission, said
3 privacy code restricting access to said positioning data by other PRS devices.